



Pearls for Anti-Coagulation Optimization in Older Adults

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Learning Objectives

1. Describe common indications for anticoagulation therapy in older adults in PALTC
2. Identify risks and benefits of anticoagulation therapy in older adults in PALTC
3. Criticize approaches to different anticoagulation treatments in PALTC

Disclosures

None

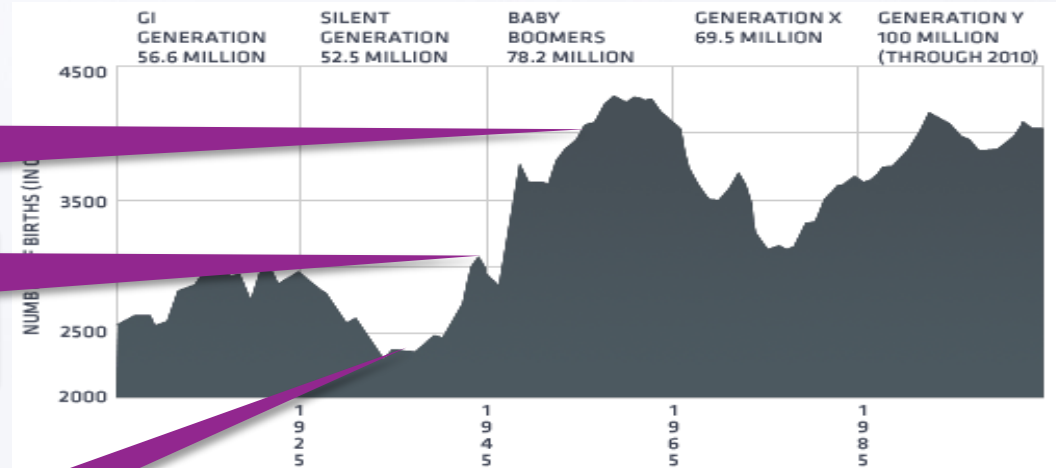


US BIRTHS 1905-2002

2040
Born 1960
80 yoa


2022
Born 1942
80 yoa

2018
Born 1938
80 yoa



GI GENERATION: 1905-1924 56.6 MILLION
SILENT GENERATION: 1925-1944 52.5 MILLION
BABY BOOMERS: 1945-1964 78.2 MILLION
GENERATION X: 1965-1984 69.5 MILLION
GENERATION Y: 1985-2004 79.5 MILLION
GENERATION Z: 2005-2024 = 16 MILLION (THUSFAR)
GENERATION BLEND*: 2025-2044! UNKNOWN

*ACC HAS CHOSE THE MONIKER "GENERATION BLEND" BECAUSE THIS WILL BE THE MOST ETHNICALLY ASSIMILATED U.S. GENERATION EVER.



Anti-coagulation is common in long term care.

87% of strokes are ischemic¹

- Atrial Fibrillation impacts
 - 5.2 million today²
 - 12.1 million people by 2030³
- Treatment on Venous Thromboembolism (VTE)
- Prophylaxis of VTE

1. Geriatric Conditions Are Associated With Decreased Anticoagulation Use in Long-Term Care Residents With Atrial Fibrillation [Journal of the American Heart Association](https://doi.org/10.1161/jaha.121.021293), 10(16), e021293 - August 2021 <https://doi.org/10.1161/jaha.121.021293>

2. CDC.gov online data <https://www.cdc.gov/stroke/facts.htm>

3. Colilla S, Crow A, Petkun W, Singer DE, Simon T, Liu X. Estimates of current and future incidence and prevalence of atrial fibrillation in the U.S. adult population. *Am J Cardiol.* 2013;112:1142-1147. doi: 10.1016/j.amjcard.2013.05.063.

Anti-coagulation is common in long term care.

A large study in 2010 evaluated warfarin use for Afib in LTC¹

- INRs were suboptimal
- 17%-57% of Afib residents on Warfarin
- Challenges outweigh benefits

Rates in a study in LTC in 2017²

- 38% Warfarin
- 32% NOACs
- 30% None

1. Neidecker M, Patel AA, Nelson WW, Reardon G. Use of warfarin in long-term care: a systematic review. *BMC Geriatr.* 2012;12:14. Published 2012 Apr 5. doi:10.1186/1471-2318-12-14

2. Rojas-Fernandez CH, Goh J, Hartwick J, Auber R, Zarrin A, Warkentin M, Hudani Z. Assessment of Oral Anticoagulant Use in Residents of Long-Term Care Homes: Evidence for Contemporary Suboptimal Use. *Ann Pharmacother.* 2017 Dec;51(12):1053-1062. doi: 10.1177/1060028017723348. Epub 2017 Jul 26. PMID: 28745065.

“I Walk the Line”



Warfarin is the most common drug involved in error in 2012.¹

- 32,176 medication error incidents reported over a 2-year period
 - 1,623 (5%) were anticoagulant medication errors
 - 2% of these errors (n=29) resulted in patient harm.
 - Anticoagulant medication errors had higher odds of patient harm when compared with other errors (OR 1.79)

The most litigious medication in long term care

- The nursing staff does not ensure the labs are drawn daily as ordered.
- The physician forgets to order the daily labs.
- The nurse does not report the labs to the physician and the two medications are used together for too long.

Use of NOACs in LTC

Effectiveness and safety of oral anticoagulants in elderly patients with atrial fibrillation

- 30 401 patients ≥ 75 years identified (median age 82 years, 53% women, mean CHA₂DS₂-VaSc score 4.5)
- Reduced (renal) doses in 49% of patients
- Efficacy similar between NOACs and warfarin
- Bleeding risk reduced or similar with NOACs vs. warfarin



Comparison of NOACs

	RE-LY (dabigatran)	ROCKET-AF (rivaroxaban)	ARISTOTLE (apixaban)	ENGAGE AF-TIMI 48 (edoxaban)
No. of patients	18,113	14,264	18,201	21,105
Study population	Patients with NVAF CHADS ₂ score ≥1 (mean 2.1) Mean age: 72 years	Patients with NVAF CHADS ₂ score ≥2 (mean 3.5) Mean age: 73 years	Patients with NVAF CHADS ₂ score ≥1 (mean 2.1) Mean age: 70 years	Patients with NVAF CHADS ₂ score ≥2 (mean 2.8) Mean age: 72 years
Study design	Double-blind randomized, non-inferiority trial	Double-blind randomized, non-inferiority trial	Double-blind randomized, non-inferiority trial	Double-blind randomized, non-inferiority trial
Dosage	150mg (110 mg) twice daily	20mg (15mg) once daily	5mg (2.5 mg) twice daily	60mg (30 mg) once daily
Control drug	Warfarin (INR 2–3) TTR 64%	Warfarin (INR 2–3) TTR 55%	Warfarin (INR 2–3) TTR 62%	Warfarin (INR 2–3) TTR 68.4%
Primary efficacy outcome	Stroke (ischemic or hemorrhagic) or systemic embolism	Stroke (ischemic or hemorrhagic) or systemic embolism	Stroke (ischemic or hemorrhagic) or systemic embolism	Stroke (ischemic or hemorrhagic) or systemic embolism
Principal safety endpoint	Major bleeding	Composite of major and non-major bleeding	Major bleeding	Major bleeding
Results	Efficacy of dabigatran 110 mg vs. warfarin (0.91; 95% CI, 0.74–1.11; P<0.001 for non-inferiority) Efficacy of dabigatran 150 mg vs. warfarin (0.66; 95% CI, 0.53–0.82; P<0.001 for superiority) Safety of dabigatran 110 mg vs. warfarin (0.80; 95% CI, 0.69–0.93; P=0.003) Safety of dabigatran 150 mg vs. warfarin (0.93; 95% CI, 0.81–1.07; P=0.31)	Efficacy of rivaroxaban 20mg vs. warfarin (0.88; 95% CI, 0.74–1.03; P<0.001 for non-inferiority; P=0.12 for superiority) Safety of rivaroxaban 20mg vs. warfarin (1.03; 95% CI, 0.96–1.11; P=0.44)	Efficacy of apixaban 5 mg vs. warfarin (0.79; 95% CI, 0.66–0.95; P<0.001 for non-inferiority; P=0.01 for superiority) Safety of apixaban 20mg vs. warfarin (0.69; 95% CI, 0.60–0.80; P<0.001)	Efficacy of edoxaban 60mg vs. warfarin (0.87; 97.5% CI, 0.73–1.04; P=0.08 for superiority) Efficacy of edoxaban 30mg vs. warfarin (1.13; 97.5% CI, 0.96–1.34; P=0.10 for superiority) Safety of edoxaban 60mg vs. warfarin (0.80; 95% CI, 0.71–0.91; P<0.001) Safety of edoxaban 30mg vs. warfarin (0.47; 95% CI, 0.41–0.55; P<0.001)

ARISTOTLE, Apixaban for reduction in Stroke and Other Thromboembolic Events in Atrial Fibrillation; CI, confidence interval; ENGAGE AF-TIMI 48, Effective Anticoagulation with Factor Xa Next Generation in Atrial Fibrillation-Thrombolysis in Myocardial Infarction 48; NVAF, non-valvular atrial fibrillation; RE-LY, Randomized Evaluation of Long-Term Anticoagulation Therapy trial; ROCKET-AF, Rivaroxaban Once-daily, oral direct factor Xa inhibition Compared with vitamin K antagonism for prevention of stroke and Embolism Trial in Atrial Fibrillation; TTR, mean percent of time in the therapeutic range. Other abbreviations as in Table 3.



Cost

- Warfarin - \$20 a month
- Dabigatran - \$475 a month (generic in June? 2022)
- Rivaroxaban - \$550 a month (generic in litigation)
- Apixaban - \$550 a month (generic after 2026)
- Edoxaban - \$380 a month (Generic)



Covid-19

- For non-hospitalized patients with COVID-19, anticoagulants and antiplatelet therapy should not be initiated for prevention of venous thromboembolism (VTE) or arterial thrombosis unless there are other indications **(AIII)**.
- Hospitalized adults with COVID-19 should receive VTE prophylaxis per the standard of care for other hospitalized adults **(AIII)**.
- Hospitalized patients with COVID-19 should not routinely be discharged on VTE prophylaxis **(AIII)**.
- Using Food and Drug Administration-approved regimens, extended VTE prophylaxis can be considered in patients who are at low risk for bleeding and high risk for VTE as per protocols for patients without COVID-19 **(BI)**



Q&A

